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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/890,139
Filing Date: November 13, 2001
Appellant(s): ERIKSSON et al

Ms Samantha M. Kameros
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 03-28-06 appealing from the Office action mailed on 09-26-05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

WO 97/04932 A1, drawn to a process for making continuously a lignocellulosic board, substantially teaches the claimed process (abstract; page 1 full paragraphs 1-2; page 4 lines 19-29; page 5 line 22 to page 6 line 4; figure 6). The main difference between WO '932 and the claimed invention is that, while WO '932 discloses moisturizing a cured board in a conditioning treatment station to a desired moisture content and also collecting emitted formaldehyde in the condition station, WO '932 is silent on how the board is moisturized, while the presently claimed process requires subjecting a cured board to conditioning treatment by *"drawing a predetermined volume of air having a predetermined content at a predetermined temperature through said board by means of suction ..."*.

WO 98/50208 A1, drawn to making continuously a lignocellulosic board, discloses subjecting at least one wall of a continuously moving pressed board with a gas treatment agent such as a steam and causing the gas to pass through the thickness of the board by forming a vacuum pressure on the opposing wall of the board so as to shorten a post-gas treatment time, and also **to recover** *"obnoxious emissions such as VOC gases released by the board material and for passing them to further processing."* (emphasis added); wherein the gas treatment agent moisture content and temperature are controlled *"to achieve a desired effect on the material 1 being treated"* (emphasis added; abstract; page 1 lines 16-23, lines 32-37; page 2 lines 20-37; page 3 lines 1-37; col. 5 lines 24-37; claims 6-7 and 10).

Gerhardt et al (US 5,643,376; abstract; col. 2 lines 1-30, lines 56-68; figures 1-3) or **Fischer et al (US 5,063,010;** col. 2 lines 3-36; col. 3 lines 23-34; figures 1-2), both drawn to continuously making lignocellulose board, teaches treating a fiber mat with a heated air having a predetermined moisture content in a conditioning zone so as to form a conditioned mat having a desired moisture content. Fischer et al also teaches using a suction device to draw a hot moisturized air through a fiber mat (col. 3 lines 11-26; figure 2).

Pozzo et al (US 4,009,073), drawn to an in-line process for making a lignocellulose board, teaches moisturizing a cured board in-line by subjecting the board to a hot, humidified air to prevent the board from warping or buckling (col. 9 lines 20-41).

Held (US 5,125,812), drawn to making a lignocellulose board, teaches grinding a board *"to its final dimensions in a grinding station"* (col. 5 lines 27-45; figure 1).

Kunnemeyer (US 4,883,546) or **Hagstrom (US 4,356,763),** both disclose a process for making a lignocellulose board with a uniform density.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/04932 A1 in view of either (Gerhardt et al (US 5,643,376) or Fischer et al (US 5,063,010)), WO 98/50208 A1, Held (US 5,125,812), and optionally further in view of Pozzo et al (US 4,009,073).

WO '932 discloses a process for continuously making a lignocellulosic particle board. The process comprises providing a mat having binder coated lignocellulose particles, wherein the particles are dried to a predetermined moisture content; feeding the mat into pre-conditioning zone, where the mat is treated to a predetermined moisture content; feeding the pre-conditioned mat into a steam injection press; pressing and applying steam to the mat to cure the binder and form the particle board; and, delivering the particle board to a post-conditioning zone where *"the board is given the moisture content that is desired ..."* (emphasis added) and wherein emitted gases from the board such as formaldehyde are collected in the post- conditioning zone. (abstract; page 1 full paragraphs 1-2; page 4 lines 19-29; page 5 line 22 to page 6 line 4; figure 6) WO '932 is silent on how a board is treated to effectively achieve a desired moisture content during a post-conditioning operation. In particular, WO '932 does not teach *"conditioning said board by drawing a predetermined volume of air having a predetermined moisture content at a predetermined temperature through said board by means of suction applied through said board"*. However, it would have been obvious in the art to post-condition a board by subjecting the board to a heated air having a predetermined moisture content, using for example, a post-gas treatment similar to the method/apparatus taught by WO '208, where a *"gaseous treatment agent is contacted with at least one wall of the board and is caused to pass through the thickness of the board"* (emphasis added) using a vacuum pressure, because: a) it is well known in the art to

continuously manufacture a fiber board, where mat is treated with a heated air having a predetermined moisture content in a conditioning zone so as to form a conditioned mat having a desired moisture content as exemplified in the teachings of either Gerhardt et al (abstract; col. 2 lines 1-30, lines 56-68; figures 1-3) or Fischer et al (col. 2 lines 3-36; col. 3 lines 23-34; figures 1-2); b) as noted above, it is desired to recover emitted gases such as formaldehyde during a post-conditioning operation; c) WO '208 discloses subjecting at least one wall of a continuously moving pressed board with a gas treatment agent such as a steam and causing the gas to pass through the thickness of the board by forming a vacuum pressure on the opposing wall of the board so as to shorten a post-gas treatment time, and also **to recover** *"obnoxious emissions such as VOC gases released by the board material and for passing them to further processing."* (emphasis added); wherein the gas treatment agent moisture content and temperature are controlled *"to achieve a desired effect on the material 1 being treated"* (abstract; page 1 lines 16-23, lines 32-37; page 2 lines 20-37; page 3 lines 1-37; col. 5 lines 24-37; claims 6-7 and 10).and optionally, d) it is also old in the art to moisturize a fibrous board to an in-line post-treatment operation by subjecting the board to a hot humidified air as exemplified in the teachings of Pozzo et al (col. 9 lines 33-41). Fischer also teaches using vacuum pressure to draw hot moisturized air through a fiber mat (col. 3 lines 11-26).

WO '932 is also silent on whether a resultant board is subjected to a finishing operation such as grinding. However, it would have been obvious in the art to

subject a post-treated/conditioned board to grinding operation, because it is a notoriously common practice in the art to grind a board *"to its final dimensions in a grinding station"* in a continuous fiberboard manufacturing process as exemplified in the teachings of Held (col. 5 lines 27-45; figure 1).

With respect to claim 7, since as noted above, WO '208 teaches subjecting at least one wall of a resultant board to a gas treatment operation (abstract; page 2 lines 23-33); and since WO '208 further teaches providing a plurality of treatment zones arranged in series; where the treatment zones are arranged in a countercurrent fashion (page 5 lines 1-22); the limitation in this claim would have been obvious in the art. An incentive for one in the art to perform the recited limitation in this claim would have simply been to obtain a self-evident advantage of subjecting the opposing wall surfaces of a resultant board to a similar conditioning operation, thereby forming a uniformly conditioned particle board.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references set forth above as applied to claim 6 above, and further in view of either Kunnemeyer (US 4,883,546) or Hagstrom (US 4,356,763).

Since it is a common practice in the art to control a resultant fiber-board density profile such as forming a non-uniform density board (i.e. a skin layer density greater than a core layer density) **or** forming a uniform density board (i.e. skin layer density equals to a core layer density) as exemplified in the teachings of Kunnemeyer (col. 1 lines 21-25) or Hagstrom (col. 11 lines 35-39), the limitation in this claim would have been obvious in the art. It is worthnoting that, it is a

notoriously common practice in the art to interchangeably form a lignocellulose board by either in a batch-wise manner using a pair of molding platens **or** in a continuous manner using a pair of pressing belts. It should further be noted that, Kunnemeyer also teaches sanding a resultant fiberboard to remove an outer surface layer of the fiberboard (col. 2 lines 38-51).

(10) Response to Argument

On page 4 full paragraph 2, Appellant argued that even if the collective prior art of record are combined, the claimed invention would not have been obvious in the art since the collective teachings of the prior art of record do not disclose *"drawing a predetermined volume of air having a predetermined moisture content at a predetermined temperature through said board by means of suction"* or *"grinding the conditioned board"*. Examiner strongly disagrees with Appellant assertion. One in the art wanting to practice the process of WO '932 (i.e. moisturize a cured board, while removing hazardous gaseous materials) would have look for solutions to a related art. The teachings of either Gerhardt and Fischer taken with WO '208 would have reasonably suggested to one in the art that a modified process/apparatus of WO '208 (i.e. using a heated air with a predetermined moisture content in combination with a vacuum pressure) would not only be effective in moisturizing a cured board in a process of WO '932, but also would be successful capturing and removing emitted obnoxious gases. As for Appellant argument's regarding a conditioned board being subjected to a grinding operation, it is a notoriously common practice in the art to grind a cured

board to a final thickness as exemplified in the teachings of Held (col. 5 lines 35-40), and also to remove unwanted surface defects on the board.

On page 5 full paragraph 2, Appellant argued that WO '208 *"... is not directed to a process for making lignocellulosic boards"*. Examiner strongly disagrees. Appellant's attention is directed to page 4 full paragraph 1 of the WO '208, where various wood-pressed boards are clearly disclosed.

On page 6 full paragraphs 1-2, Appellant argued that, in both Gerhardt and Fischer, *"a particle mat for pressing into a pressed board is heated by passing treatment air coming from an air conditioning system through the mat. In contrast, claim 6 requires drawing ... air having predetermined moisture content through the board ...."*. However, the teachings of Gerhardt or Fischer taken with WO '208 and optionally the teachings of Pozzo et al would have suggested to one in the art that an effective and yet a simple way to moisturize a cured board in a process of WO '974 is to use a hot moisturized air. All that would have needed is to use a moisturize air instead of treatment gases such as a steam in a conditioning device taught by WO '208 or even use a conditioning device of Fischer (where this device is disposed downstream from a pressing operation to provide a post-conditioning operation). There are only very limited treatment fluids namely: steam, water and moisturized air, which are practicable for moisturizing a cured board in the process of WO '208. Absent any showing of unexpected benefit, it is well within the purview of choice in the art to choose

from among a very limited number of choices of treatment fluid for moisturizing a cured board.

On page 6 last full paragraph, Appellant argued that *"neither Gerhardt nor Fischer add anything to the primary, WO '932"*. Examiner strenuously disagrees with Appellant assertion. The teachings of either Gerhardt or Fischer would have suggested to one in the art that an effective and yet a simple way to moisture a fiber mat is to use a hot moisturized air. The teachings of Gerhardt or Fischer taken with WO '208 would have suggested to one in the art that one can successfully moisturize a cured board in a process of WO '932. Using a moisturized air in combination with a suction pressure is simple and yet an effective way to reduce the time needed to moisturize a cured board by drawing the moisturized air through the cured board. Additionally, the suction pressure also enables one to capture emitted obnoxious gases in a post-conditioning operation, which is another objective function of the post-conditioning operation of WO '932.

On page 7 full paragraphs 1-2, Appellant argued that while Pozzo teaches post-treating a cured board to a hot humidified air to prevent warpage, "Pozzo does not teach drawing air through the board by means of suction ...". Examiner agrees. That may one of the reasons why it takes a long time to post-treat a cured board with a hot humidified air. More important, WO '208 teaches using suction means to not only draw steam through a cured board, but also to capture unwanted emitted VOC such as a formaldehyde. One in the art would have

reasonably recognized and appreciated that in order to enhance the ability for a hot humidified air to penetrate through a cured board, it would be advantageous to provide a vacuum means in a post-condition operation. An additional incentive for providing a vacuum means as suggested by WO '208 would have simply to capture unwanted emitted gases during a post-conditioning operation.

On page 8, Appellant argued that *"... there is no teaching, ... in any of the references cited to combine the teachings of Held, a two-step compression process using a double band press ... of WO '932, which teaches a single step compression ..."*. Examiner strongly disagrees with Appellant's assertion. Regardless of the type of pressing operations, one in the art would have been motivated to grind a cured board in order to not only obtain a desired thickness as suggested by Held, but also to remove unwanted board surface defects/irregularities.

On page 9 full paragraph 1, Appellant argued that there is no motivation to provide 1st and 2nd moisturized air drawing operation, as noted above, WO '208 teaches subjecting at least one wall of a resultant board to a gas treatment operation (abstract; page 2 lines 23-33); and further teaches providing a plurality of treatment zones arranged in series; where the treatment zones are arranged in a countercurrent fashion (page 5 lines 1-22). These passages clearly indicated that WO '208 envisioned blowing 1st and 2nd treatment gases (each with a respective a vacuum device) against the opposing major surfaces of a cured board. The teachings of Fischer et al or Gerhardt et al taken with WO '208 would

have suggested to blow 1st and 2nd treatment gases (each with a respective a vacuum device) against the opposing major surfaces of a cured board to obtain a more balance/uniform treatment on a cured board by subjecting the opposing wall surfaces of a resultant board to similar conditioning operation, thereby forming a uniformly conditioned particle board.

In summary, it should be emphasized that, the steam injection operation taught by WO '932 is performed during a heat-pressing operation and not during a conditioning operation. Moreover, while it is desired in WO '932 to moisturize a pressed board and to remove gaseous materials such as a formaldehyde during a post-conditioning operation, WO '932 is silent on how to effectively achieve these two objectives. One in the art reading collectively the teachings of the secondary references would have been motivated to post-condition a pressed board in a process of WO '932 by subjecting the board to a heated air having a predetermined moisture content, using for example, a post-gas treatment similar to the method/apparatus taught by WO '208, where a *"gaseous treatment agent is contacted with at least one wall of the board and is caused to pass through the thickness of the board"* using a vacuum pressure in order to effectively achieved the above two objectives.

On 10 full paragraph 1, Appellant argued that "Hagstrom is directed to hydraulically-operated press and is not directed to a continuous process for making lignocellulosic containing boards". Accordingly, it would be improper to combine Hagstrom with a compression process of WO '932, where compression

rollers are used. As noted in a prior office action, it is disclosed in Held that in general *"... continuous processes use a double-band press, while discontinuous processes utilize single or multiple platen presses"* to manufacture a wood-based board (col. 2 line 63 to col. 3 line 2). The teachings of Hagstrom (col. 11 lines 37-39) would have suggested to one in the art that, it is well within the purview of choice in the art to form a board having a skin layer which is relatively dense as compared with an inner layer or to form a board having a substantially uniform density. It is worthnoting that, WO '932, in discussing a related prior art process for making a lignocellulose board on page 2 lines 12-22, discloses continuously forming a uniform density pressed board using a pair of belt pressed. The continuously formed pressed board, however, is further subjected to another belt-pressing operation to form a board having a relative dense skin layer. This clearly shows that the art would not only have been able to, but also would have known how to continuously forming a board having a substantially uniform density.

On page 10 last paragraph to page 11, Appellant argued that there is no motivation "*in any of the references cited that their teachings may be combined with a process that requires the formation of wood dust layers*". Examiner strongly disagrees. The teachings of Kunnemeyer would have motivated one in the art to provide a pair of wood dust layers to a process of WO '932 to provide protective covering to a pressed board thereby substantially preventing losing *"high value material"* during a sanding/grinding operation (abstract; col. 1 line 34 to col. 2 line 63). As for Appellant's argument that while a finished board of

Kunnemeyer has a *"uniform a density distribution as possible"*, this is not equivalent to the claimed invention of a board having a *"substantially the same density"*. It is respectfully submitted that a board which has a *"substantially the same density"* reads on a board which has a "*uniform a density distribution as possible"*. If not, how can a fiber board have a uniform density distribution and yet not have a substantially the same density? It should be noted that, while claim 8 requires a pair of surface layers and a center layer, there is nothing in this claim, which positively requires the various layers being **discrete** layers. In other words, the claims as presently recited do not positively require forming an interface between a core layer and each of the pair of surface layers.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

scy

Conferees:

Richard Crispino

Steven Griffin